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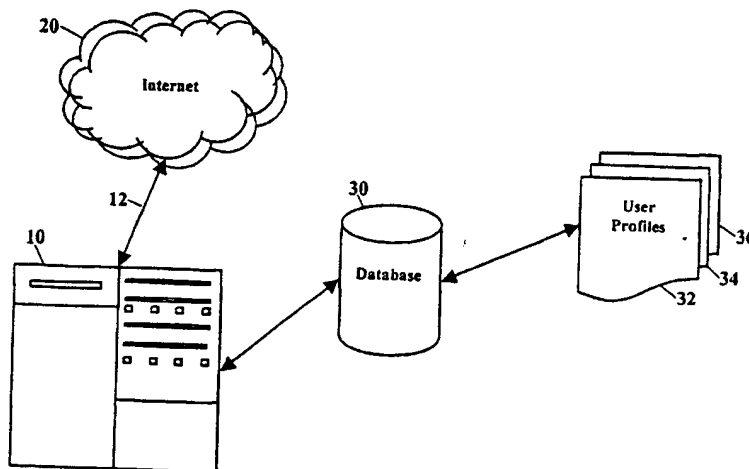
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(54) Title: **WEB BASED MESSAGING SYSTEM WITH PERSONALIZED CALLER SPECIFIC MESSAGES**



(57) Abstract: A world wide web based messaging system for use, for example, with a public switched telephone network. The messaging system allows a user to provide caller specific personalized messages, for example voice greetings, to incoming callers. In embodiments of the present invention, the messaging system may be configured remotely, for example via the internet/world wide web. The messaging system comprises a message and a processing system. The processing system comprises a caller identification system and a database of specific messages linked to specific caller identification data. The processing system maintains an individual customer profile for the user that the user can configure with specific messages, e.g. voice mail greetings, and to control and specify which message is provided to a particular caller. The customer profile comprises information, including the customer's telephone number or numbers and caller identification data for the customer of the type generally found in public switched telephone networks.



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## Web Based Messaging System With Personalized Caller Specific Messages

### Field of the Invention:

The present invention relates to systems and methods for providing caller specific messages, for example, voice greetings in response to telephone calls received. An embodiment of the present invention comprises an internet and/or intranet based server, accessible through multiple communication pathways, for configuring the system and the caller specific messages.

### Background of the Invention:

The term "voice mail" is often utilized to refer to systems wherein parties may leave spoken messages for one another that are stored and retrieved at a later time. Voice mail is also utilized to refer to spoken messages attached to electronic mail communications.

Telephone answering systems are an example of a voice mail system. In a conventional telephone answering system a user records a greeting that is replayed to incoming callers if the user does not answer the telephone. Generally, the answering system allows an incoming caller to record a spoken message that may be retrieved and listened to at a later time.

Although widely utilized, telephone answering systems have not advanced to a significant degree. The US patent literature discloses several approaches to improving telephone answering systems and their components. US Patent No. 5,278,894, to Shaw, the disclosure of which is hereby incorporated herein by reference, discloses a method and apparatus for providing customized greeting messages from a switch based voice messaging service. US Patent No. 6,067,355, to Lim et al., the disclosure of which is also hereby incorporated herein by reference, discloses a caller-ID device and/or integrated caller-ID and answering machine device which is configurable 1) to play pre-recorded announcement for the user when the caller ID information received over the PSTN (public switched telephone network) corresponds to stored information indicating an important caller; 2) to play a pre-recorded "block-the-blocker" outgoing message for the caller when a blocked-caller-ID code is received; and/or 3) to play a pre-recorded "reject call" outgoing message for the caller when the caller-ID information corresponds to stored information indicating an undesirable caller.

There are several methods and products that allow the user of a telephone to identify the source of an incoming telephone call. US Patent No. 5,692,038, to Kraus et al., the

disclosure of which is hereby incorporated herein by reference, discloses a method for identifying the source of a communication, including the steps of: receiving the communication on a calling line; identifying the calling line number associated with the calling line; accessing a database to provide an identity for the source by finding a database entry corresponding to the calling line number; announcing this identity to the source; and requesting confirmation. US Patent No. 6,009,158, to Romero, the disclosure of which is also hereby incorporated herein by reference, discloses a caller ID call-back device that allows a user to automatically place telephone calls to selected directory numbers using several dialing plans.

It would be advantageous to have a telephone answering system that allowed a user to provide a personalized caller specific greeting. For example, a home telephone user may wish to inform a contractor that the user will be home at a certain hour in order to let the contractor in. The home telephone user, however, would not want to leave a general answering machine message informing all callers that the user would be away from home and returning at a particular time. A personalized caller specific greeting system would allow the home telephone user's answering system to respond to a call from the contractor with a message such as "Thank you for your call, Ms. Jones will be home at 4:00 PM to let you into the house", while responding to other calls with a general message such as "We cannot answer the phone right now, please leave a message for us after the tone". Similarly, a business telephone user may wish to leave personalized caller specific greetings for specific clients etc. As will be understood by those of ordinary skill in the art, there are a large number of potential uses for such a personalized caller specific greeting system.

In addition to telephones, in recent years, the number of communication devices and their use, has increased dramatically. Examples of communication devices include telephones, analog and digital cellular phones, pagers, wireless email devices, personal digital assistants and the like. Many such devices are able to directly access the world wide web and/or corporate intranet sites.

Prior telephone answering systems often required a user to physically interact with an answering machine in order to configure the machine. Alternatively, several types of answering machines were generally configurable via telephone. It would be advantageous, however, to have a telephone answering system that was configurable via an electronic communications pathway such as the world wide web. It would be further advantageous if such a telephone answering system provided for personalized caller specific greetings.

Embodiments of the present invention achieve the aforementioned advantages and other advantages as described below.

**Summary of the Invention:**

5           The present invention provides a messaging system that overcomes the disadvantages with prior systems and provides new advantages to its users. The messaging system allows a user to provide caller specific personalized messages, for example voice greetings, to incoming callers. In embodiments of the present invention, the messaging system may be configured remotely, for example via the internet/world wide web.

10           According to the present invention, a messaging system comprises a message and a processing system. The processing system comprises a caller identification system and a database of specific messages linked to specific caller identification data. The processing system is linked to a public switched telephone network, for example, through an intranet link including proper security measures, and to the world wide web.

15           A user of the system may access the processing system through the world wide web through a personal computer, personal digital assistant or wireless phone with internet capabilities. The processing system maintains an individual customer profile for the user that the user can configure with specific messages, e.g. voice mail greetings. and to control and specify which message is provided to a particular caller. The customer profile comprises  
20 information, including the customer's telephone number or numbers and caller identification data for the customer of the type generally found in public switched telephone networks. In embodiments of the present invention, a user may also access the processing system via a wire line or wireless telephone to configure their customer profile via Voice XML.

For use, a user accesses his or her individual customer profile via a personal computer  
25 or other means. The user then provides a list of one or more telephone numbers that, if a call is received from, the messaging system will provide a customized message to the party placing the call to the customer. The telephone numbers are converted to their respective caller identification ("caller id") data. If a call is received by the customer, caller id data for call is obtained and the processing system is notified. The processing system and queries the  
30 customer profile to determine whether the caller id for the call matches a caller id specified by the customer. If so, the processing system provides the customized message entered by the customer into the processing system. The message is returned through the public switched telephone network to the caller. In embodiments of the present invention the processing system may direct a service control point (SCP) to direct a Service Switching

Point (SSP) to route the incoming call to a specific network location, referred to herein as a voice/web gateway to receive the customized message.

Another aspect of the present invention is a method for providing customized messages to incoming callers. The method comprises generating caller id data for an incoming call to a customer, querying a processing system to determine whether the caller id data matches caller id data specified by the customer for receipt of a customized message, and, if so, delivering the customized message in response to the incoming call. A method of the present invention may be performed utilizing a system of the present invention.

An advantage of a system of the present invention is that the customer profile information may be accessed and configured by a customer utilizing the world wide web, via a personal computer, personal digital assistant or wireless phone. Thus, a customer may configure his or her information and profile from locations remote from the phone receiving the incoming calls.

Another advantage of the present invention is that a customer may configure their profile utilizing Voice XML input. This aspect of the present invention allows the customer to update their profile remotely utilizing a voice link.

A further advantage of the present invention is that a customer may configure their profile to deliver specific customized messages, including customized voice greetings, to specific incoming callers.

Further details and advantages of the present invention will become apparent from the following more detailed description.

#### Brief Description of the Figures:

Figure 1 provides a schematic depiction of a possible embodiment of a processing system according to the present invention.

Figure 2 provides a schematic depiction of a possible configuration of components in a system of the present invention.

Figure 3 provides a schematic depiction of the connections among the components in a public switched telephone network and a processing system according to the present invention.

Figure 4 provides a broad schematic overview of an embodiment of the present invention showing all the components set forth in Figures 1, 2 and 3.

#### Detailed Description of the Present Invention:

An embodiment of a system of the present invention comprises:

a processing system wherein the processing system comprises a processor and a database of user profiles that may be queried in response to an incoming telephone call; and a message system in communication with the processing system,

5 wherein the user profile includes caller data for at least one incoming call, the caller data linked to a specific message deliverable by the message system.

A web server, accessible via the internet may serve as a processing system of the present invention. The web server will generally comprise a processor, memory, a database and a router for handling incoming and outgoing electronic communications. Currently  
10 available hardware platforms, including PC's, Minicomputers and mainframes, and currently available operating systems, including UNIX, MS Windows, Mac OS and Linux, may be utilized in the web server. The processor in the web server may comprise the central processing unit of a computer, e.g. an Intel, Motorola, IBM or AMD microprocessor. The router may be implemented utilizing software or hardware. Commercially available software  
15 for routing includes software from Microsoft, Oracle and others. The database may be implemented utilizing commercially available software comprising standard query language (SQL). Database software is commercially available from Oracle, Microsoft and others.

A message system of the present invention comprises a message and a communications network for delivering the message to a caller. In the present invention, a  
20 message may comprise a recorded or computer generated voice message, or an alphanumeric message. The choice of message is determined by user preference when configuring the processing system. In general, a voice message will be delivered to a caller utilizing a conventional telephone line. In alternative embodiments of the present invention, a alphanumeric and/or text based message is delivered to a caller apparatus equipped to receive  
25 alphanumeric message. An example of such a caller apparatus is a web capable telephone or personal digital assistant.

An example of a processing system of the present invention, in the form of a web based server is depicted schematically in Figure 1. As shown in Figure 1, web server 10, is accessible through the internet, 20, via a TCP/IP link, 12. Server 10 comprises database 30  
30 that includes individual user profiles 32, 34, 36 etc.. Database 30 may include a substantially limitless number of user profiles. As will be understood by those of ordinary skill in the art, a processing system may comprise multiple linked servers and associated databases.

A user profile will generally comprise caller data associated with potential incoming calls to a user and a message or messages associated with the caller data. In an embodiment

of the present invention, caller data comprises a callers telephone number. A user interface for the present invention may include additional information relating to the caller, for example, the caller's name to assist a user in identifying particular callers. The processing system may include a look-up feature to assist a user in identifying a caller's telephone  
5 number. The caller numbers may be converted by the processing system into an incoming caller line identification number for use. This conversion may be performed automatically at the time a user enters a caller's telephone number, or may occur when the processing system receives notification of an incoming call.

A user profile may additional comprise additional data relating to the user, or specific  
10 incoming call or message information. Examples of additional data include time and date information, email notification data, For example, in an embodiment of the present invention

As will be understood by those of ordinary skill in the art, the processing system may utilize any of a variety of user interfaces to allow a user to configure the system. In  
embodiments of the present invention, the user interface may comprise a web page with  
15 fields that allow the user to enter particular information to be stored in the user's profile. XML may be utilized to construct the web page.

As shown in Figure 2, in embodiments of the present invention, web server 10 may be accessed through the internet 20, via a TCP/IP communications link 12. An advantage of the present invention is that insofar as web server 10 may be accessed through the internet, a user  
20 may access web server 10 via an internet connection utilizing, for example, a personal computer 40, a personal digital assistant 50 or an internet capable cellular phone 60.

The connection, 42, from personal computer 40 to the internet 20, may be made using TCP/IP protocol in a dial-up or network mode. The connection from personal digital assistant 50 to the internet may be made directly via TCP/IP protocol 52. Alternatively, in an  
25 embodiment of the present invention, wherein the personal digital assistant utilizes the PalmOS, the connection to the internet may be made through use of a Palm Web Clipping Proxy 54. An embodiment of the present invention includes the use of a Universal Call Control (UCC) Palm Query Application (PQA). The PQA may include a user interface for  
configuring a user profile on the web server 10, as well as the communication protocols  
30 necessary to connect to the web server through the Palm Web Clipping Proxy 54. The design of such a PQA is within the skill of those of ordinary skill in the art.

The connection from cellular phone 60 to the internet 20 may be achieved utilizing a wireless application protocol (WAP). In embodiments of the present invention, cellular  
phone 60 connects to the internet 20 through a WAP Gateway 62. The WAP gateway may be



maintained by the user's cellular service provider. Generally, a connection will be established from the WAP Gateway to a service provider's intranet network 66, utilizing a TCP/IP communications link 64. Connection to the internet 20 may be accomplished from the intranet 66 utilizing a TCP/IP communications link 68. Appropriate firewalls and security  
5 safeguards, known in the art, are maintained between the intranet site and the internet. For use with WAP cellular phones, a user interface and commands, to enable a user to configure and control their user profile may be written in Wireless Markup Language (WML).

Although several methods and apparatus for connecting a user to the web server are depicted and described, a system of the present invention may include alternative or  
10 additional means that allow a user to configure their user profile. For example, in an embodiment of the present invention, a user may connect to a processing system utilizing a land line telephone via a public switched telephone network. This embodiment would include a user interface comprising Voice XML to allow a user to configure the user profile by providing voice (i.e. orally spoken) commands.

15 Figure 3 depicts, in schematic fashion, the connections among an incoming caller's phone and a processing system in a possible embodiment of a system of the present invention. As shown in Figure 3, an incoming call for a user of the present invention could be placed, for example, from a land line phone 70 or a cellular phone 72. The call would be placed over the public switched telephone network (PSTN) and would initially be received at  
20 a service switching point (SSP), 74. The SSP, 74, communicates with a service control point (SCP), 76 for example through an SS7/TCAP communications link. Caller identification data for the incoming call may be determined at the SCP. The SCP is linked via a TCP/IP link 78 to a service provider's intranet 66. The intranet 66 is linked to the internet 20, and thereby the web server 10 including customer profile information.

25 The SCP, 76, sends a query to web server 10 through the intranet and internet connections. The query includes called identification data for the incoming call and caller identification data for the intended recipient, who is a user of the system. The caller identification data relating the intended recipient is utilized to locate and identify the user's individual profile in the database maintained by the processing system. The identification  
30 data for the incoming call is compared to caller identification data in the user's profile to determine if a match is made between the incoming caller identification data and caller identification data previously specified by the user. If a match is made, the processing system responds to the query by issuing instructions for delivering the message specified by the user for that caller. The instructions are forwarded back through the existing

communication links to the SCP. In a possible embodiment of a system of the present invention, the SCP may then direct the SSP to link to a port on a Voice Web Gateway, 80 to connect the incoming call to the message desired by the user. Should a match not be made between the caller identification data for the incoming call and the caller identification data in the user's profile, the processing system may issue instructions to the SCP to have the SCP link to a general message port on the Voice Web Gateway, or to connect the call to the users phone where it may, or may not, be answered.

Figure 4 provides a schematic overview of a system of the present invention showing all of the components depicted in Figures 1, 2 and 3 and discussed above. As further depicted in Figure 4, a security solution 67, such as a firewall or other similar technology, may be maintained between internet 20 and intranet 66. In addition, in an embodiment of the present invention, voice/web gateway 80, may be linked via communication links 81 and 82 to the intranet 66, and the internet 20, and thereby processing system/web server 10. Such a link will allow the processing system to directly configure a message to be delivered to an incoming caller. In an embodiment of the present invention, these communication links may also permit a user of the system to record an oral greeting via the internet for storage and playback through voice/web gateway 80.

An example of the operation of an embodiment of the present invention may be described with reference to Figure 4. A user of the system may utilize internet browsing software and his or her personal computer 40 to connect to the internet 20 via a TCP/IP or network link. A processing system of the present invention, comprising web server 10, is accessible through the internet, for example through the user entering a web address, or through a link from the service provider's home page. Access to the web server, or the portion of the web server implementing the features of the present invention, may be controlled via a password system.

In an embodiment, a system of the present invention may comprise a webbased user interface in XML code that is initiated when a user logs onto the web server. The user interface will facilitate the entry of data into the user's profile, 32, maintained in database 30, on web server 10. For example, the user interface may comprise blanks or pull down menu's to assist the user in entering information, and may query the user to receive information necessary for operation of the system.

Through the user interface, a user creates, updates and/or configures their user profile. The user profile may contain many different types of information. In general, the user profile will comprise one or more of the following types of information, which may be encrypted to

enhance its security: user identification data; incoming call data; message data; and time data. User identification data may comprise identification data, such as caller identification data, for the telephones where the user receives incoming calls; and/or personal data relating the user such as name, address, birth date and/or financial data etc. The incoming call data  
5 may comprise caller identification data for incoming calls that the user wishes to receive a customized message. The caller identification data may further comprise, incoming call telephone numbers and/or personal data relating to owner of the incoming call station. Caller identification data may be entered by the user, and/or may be supplied by the system's service provider through queries to the service provider's record. For example, the user  
10 interface may be designed to include a look-up functionality wherein in response to a name entered by the user, the system looks for matching caller identification data and allows the user to select from a list of matching caller identification data.

Message data may comprise a voice or electronic greeting, and/or a link to voice or electronic greetings. As shown in Figure 4, web server 10 may be linked, to Voice/Web  
15 gateway 80 through the internet and/or intranet using TCP/IP or network communication protocols. The voice web gateway may include voice greetings recorded by a user of the system, or entered by the user of the system and converted to electronic voice greetings.

In embodiments of the present invention, the Voice/Web gateway may be additionally accessed, or alternatively accessed through a direct phone connection and the public switched  
20 telephone network. Such a connection may be configured to allow a user to record voice messages that are linked to the users profile. Access to the voice messages and control of their use may be accomplished through the internet and the user's profile on the web server.

As part of the processing system, links are created between and among specific caller identification data and specific messages in the user profile. For example, should a user want  
25 to provide a specific message to a spouse, caller identification data relating to the telephone that will originate the call from the spouse is linked to the specific message. In embodiments of the present invention, a security system may be utilized, for example a numeric password, to ensure the person making the incoming call from an identified calling station is the person for whom the message is intended.

As shown in Figure 4, in an embodiment of the present invention the processing  
30 system/web server may be accessed, and user profiles configured, utilizing a personal digital assistant, 50 or a wireless phone 60. The user interface for each device will be customized for use with the device. For example, in the case of a personal digital assistant utilizing the Palm Operating System a PQA may be created to allow a user to access the web server and

configure their user profiles. Such access may further include the use of a palm web clipping proxy, 54 or its equivalent in other operating systems such as WinCE, PocketPC, or EPOC, as an intermediary between the personal digital assistant and the internet. As shown in Figure 4, the personal digital assistant may further be able to communicate with the Voice/Web gateway through an internet connection.

In an embodiment of the present invention, a wireless application protocol cellular phone, 60 may access the internet through a wireless application protocol gateway 62 and a cellular service provider's intranet site, 64.

In operating, the path of an incoming call may proceed as follows, with reference to Figure 4. Incoming call originates, for example, from land line phone 70. The call is first handled by SSP, 74 and then switched to SCP, 76. The SCP sends a query via a TCP/IP links, 78 and 68 through a service provider's intranet site and firewall 67, to the internet and web server/processing system 10. The query comprises caller identification data relating to the incoming call and phone 70, and caller identification data relating to the intended recipient who is the user of the system. The processing system uses the caller identification data relating to the user to attempt to match the caller identification data for the incoming call with a caller identified in the user's profile. If a match is made, the processing system returns instructions through the internet, intranet and firewall to the SCP. The instructions direct the SCP to direct the SSP to forward the call to a port in Voice/Web gateway for receipt of a specified message.

The implementation of embodiments of the present invention, through the use of the existing public switched telephone network, existing caller identification data, TCP/IP communication links, XML code, VXML code, UCC/PQA code, WAP code, SQL code, operating system software and the like is believed within the skill of one of ordinary skill of the art from the foregoing description. As will be understood by those of ordinary skill in the art, there are many possible embodiments of a system of the present invention that may be advantageously implemented and utilized. Accordingly, the present invention encompasses all embodiments falling within the scope of the following claims.

## Claims:

1. A system for providing specific messages in response to incoming telephone calls, the system comprising:

5 a processing system wherein the processing system comprises a processor and a database of user profiles that may be queried in response to an incoming telephone call; and a message system in communication with the processing system and comprising at least one message,

10 wherein the user profile includes caller data for at least one incoming call, the caller data linked to a specific message deliverable by the message system.

2. The system of claim 1 wherein the processing system comprises a server on the world wide web.

15 3. The system of claim 2 wherein the web server comprises a processor, memory, a database and a router for handling incoming and outgoing electronic communications.

4. The system of claim 3 wherein the message system comprises a message and a communications network for delivering the message to a caller.

20 5. The system of claim 4 wherein the message comprises a recorded or computer generated voice message.

6. The system of claim 5 wherein the communications network comprises the world wide web.

25 7. A method for providing a specific message in response to an incoming telephone call, the method comprising:

receiving the incoming call at an SSP;  
transferring the incoming call to an SCP;  
30 determining caller identification data for the incoming call;  
determining caller identification data for the intended recipient;  
sending a query to a processing system, the query comprising at least the caller identification data for the incoming call and the caller identification data for the intended recipient;

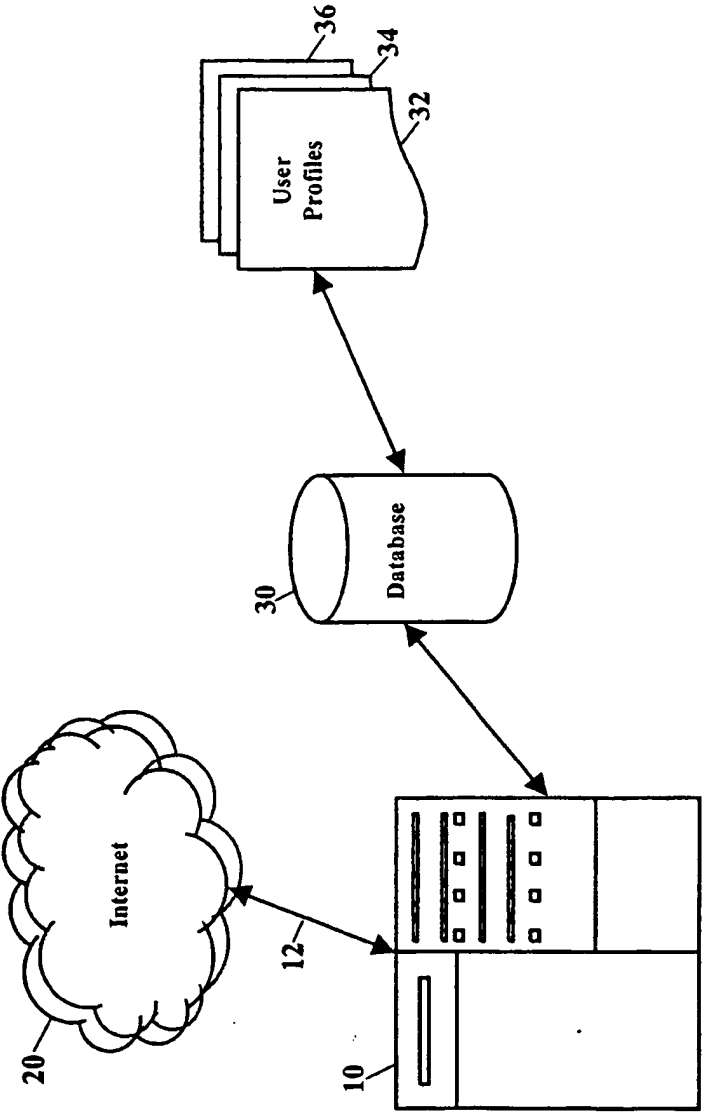
locating a user profile accessible by the processing system utilizing the caller identification data for the intended recipient, the user profile comprising caller identification data for at least one incoming call and a message linked to each caller identification data; querying the user profile to determine whether the caller identification data for the incoming call matches caller identification data in the user profile; and if a match is established, instructing the SCP to forward the incoming call to a location for receipt of the message linked to the caller identification data; wherein: the query is sent via a communication system comprising the world wide web and the processing system utilizes the world wide web for communicating instructions to the SCP.

8. The method of claim 7 wherein the user profile is established by a method comprising: accessing the processing system via a communication link through the world wide web.

9. The method of claim 7 wherein the processing system comprises a users interface for configuring the user profile.

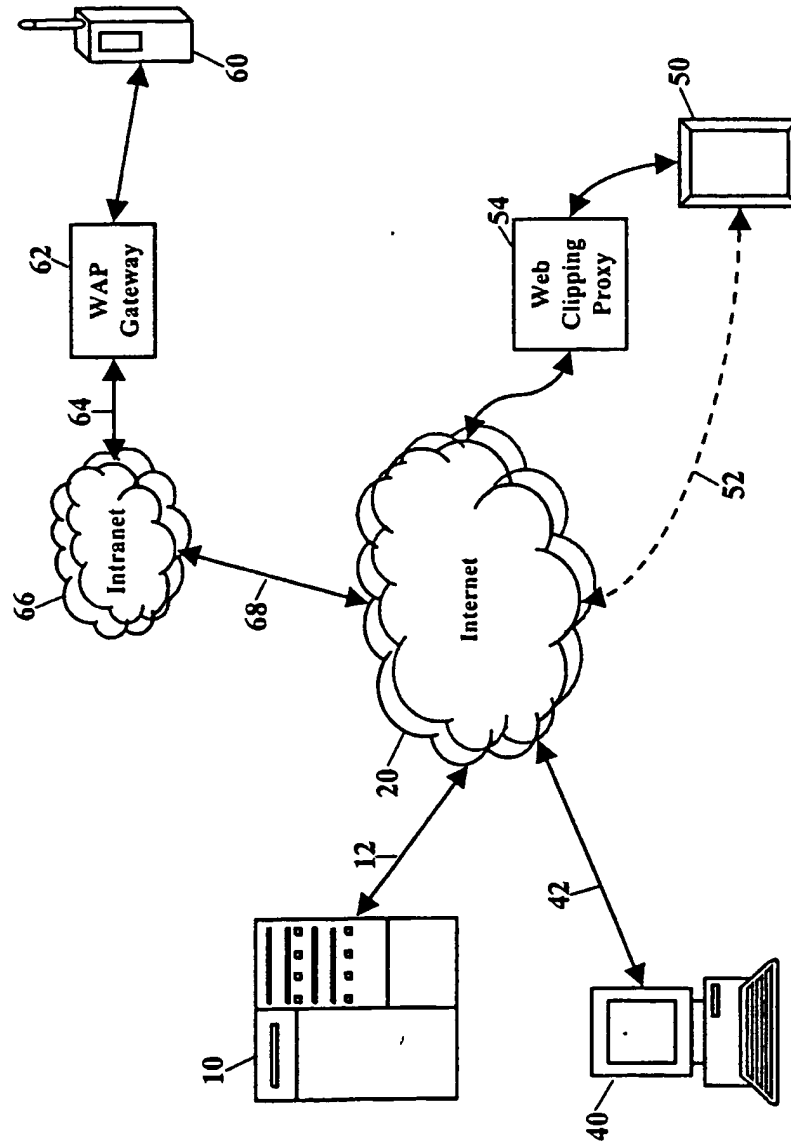
10. A public switched telephone network linked to a system of claim 1.

FIG. 1



2/4

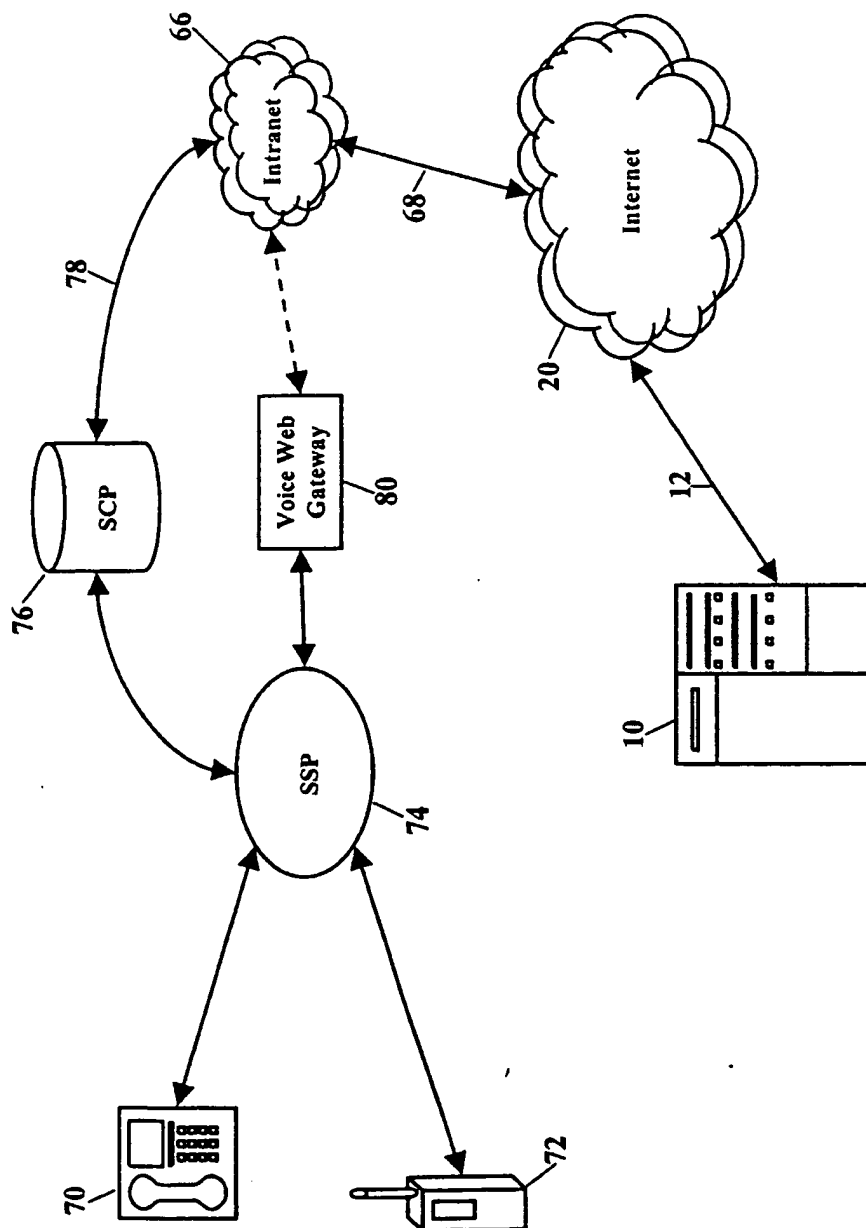
FIG. 2





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FIG. 3



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FIG. 4

